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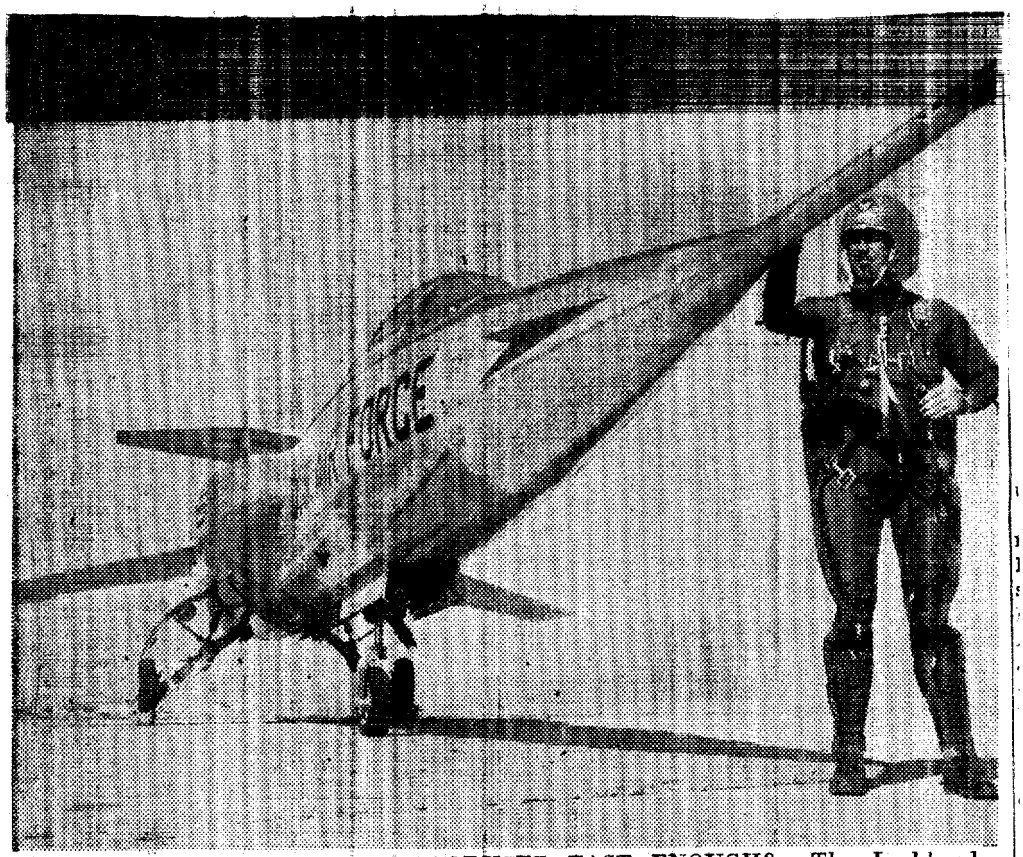

FASTEST FIGHTER—WAS IT PRODUCED FAST ENOUGH?—The Lockheed F-104 Starfighter with Lockheed's chief test pilot Herman R. Salmon standing beside it. Called the "Missile With the Man in It," this jet plane can streak along twelve miles high at twice the speed of sound. It took five years and four months to bring the F-104 into production, but the manufacturer says this was eighteen months too long

[redacted]

Builder Blames U. S. for Delay

Wonder Jet 5 Yrs. A-Borning

[redacted] *military aircraft production.*

By Robert S. Bird and Tom Lambert

Give the F-104 a couple of seconds at full throttle with afterburner cut in and needle nose pointed at the sky, and it will climb right straight up into the upper stratosphere at 1,000 miles an hour. And even faster, though how much faster is a secret. This new lightweight Starfighter, manufactured by the Lockheed Aircraft Corp, has been called "The Missile With a Man in It." Only a carnival man could describe the F-104 with justice, it looks so clean and slim and elite, and at the same time almost toy-like, as if it would be fun to fly. A real elegant plane, a real dandy. It can flash straight up more than twelve miles and streak along "straight and level," as pilots say, at about Mach 2, or twice the speed of sound.

Bird

Lambert

The Air Force Chief of Staff, Nathan F. Twining, matter-of-factly, calls it "the fastest and highest-flying fighter anywhere in the sky." Airmen begin to glow when they talk about this flying stiletto, and they tell about how fast it came into being.

How fast? Let's see.

At a time when the Soviets are crowding this country for air supremacy, it took five years and four months to bring out the F-104 from first design study to first production model flight. By Air Force and Pentagon standards, that is indeed fast "lead time," as the development cycle is called. [redacted] the manufacturer of the [redacted] was exce[redacted] what it was a very long span for even today's complex, high performance aircraft."

Robert E. Gross, president of Lockheed, says that the F-104 could have been rolled off the production line some eighteen eighteen months earlier if they had not been held up by Pentagon and Air Force indecision—meaning both top level delays and a steadw stream of fretful little bureaucratic roadblocks.

Pilots in Korea Originated Idea

It is not known if the Soviets have an airplane in the same class with the F-104, but it should not be too surprising if they do. The Soviets have been making remarkable aeronautical strides, apparently not too much hobbled by indecision, red tape and paperwork.

The idea for the Starfighter came from American pilots who had been fighting the agile Soviet MiG-15s over the Yalu [redacted] They wanted [redacted] "with a lot of altitude and a lot of speed."

No aircraft designer in this country followed the Korean air war more closely than C. L. (Kelly) Johnson, Lockheed's vice-president in charge of research and development, and his engineering mind had been busy on an aeronautical dream—a fast, light high-flying fighter, not for Korean combat but for protection of this country in the air in the years ahead.

What happened to Mr. Johnson's dream—its ups and downs—is set forth here in terms of time spans, with some slight overlapping, in the life history of the F-104.

FIRST TIME SPAN (thirty months):—In September, 1950, the Air Force asked American aircraft manufacturers to submit designs for a comparatively heavy all-weather interceptor fighter with good range, a completely automatic fire-control system and good protection for the pilot. Though such a plane was considerably more weighty and less dazzling in prospect

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than the Johnson [redacted] airplane, Lockheed entered the design competition and won.

Air Force Cancels Its Authorization

The Air Force authorized the company to begin "Phase I" preliminary designs for the new fighter. Two and one-half months later (one year after first inviting competition for design of such a plane), the Air [redacted] expanded the Lockheed design authorization. In other March, 1953, authorized the com- its mind. Further re-evaluation of the Korean air war experience indicated that any new fighter should have more performance, at the expense of range.

Mr. Johnson revived his dream. High performance without great emphasis on range could mean a lightweight fighter, just what he had in mind. He went ahead on his own with designs for just such a fighter, and for months he pressed the Pentagon and Air Force to accept them. In December, 1952, the Air Force told Lockheed to start designing a prototype lightweight fighter and in March, 1953, authorized the company to build two airplanes.

SECOND TIME SPAN (twelve months):—In contrast to the thirty months it took the Pentagon and Air Force to make up their minds on what they wanted in the way of a new fighter, Lockheed made and flew the first prototype F-104 in just one year flat.

Lockheed did this, first, by forming a task force of engineers divorced as much as possible from all interference, and assigned it one job—to meet a first flight date, March 1, 1954. Not only a date but an hour: 9 a. m. Both date and hour were met.

Second, Lockheed recruited for its task force the most capable men available.

Third, the company gave the task force a precise set of requirements, not only as to schedule, but for performance and costs as well.

Fourth, having provided for the task force an "environment of freedom," Lockheed gave its chief the maximum authority to do the job as he thought best.

Getting out prototypes in a [redacted] new at Lockheed. In World War II, the company built and flew a prototype P-80 jet in 147 days.

ME SPAN (nine months):—Confident that the F-104 design would be successful, Lockheed proposed in September, 1953, six months before the prototype was finished and flown, that the Air Force issue a go-ahead for producing F-104s. For nine months the Pentagon and Air Force backed and filled, waited and processed paper work and studies on the matter.

Company Went Ahead on Its Own

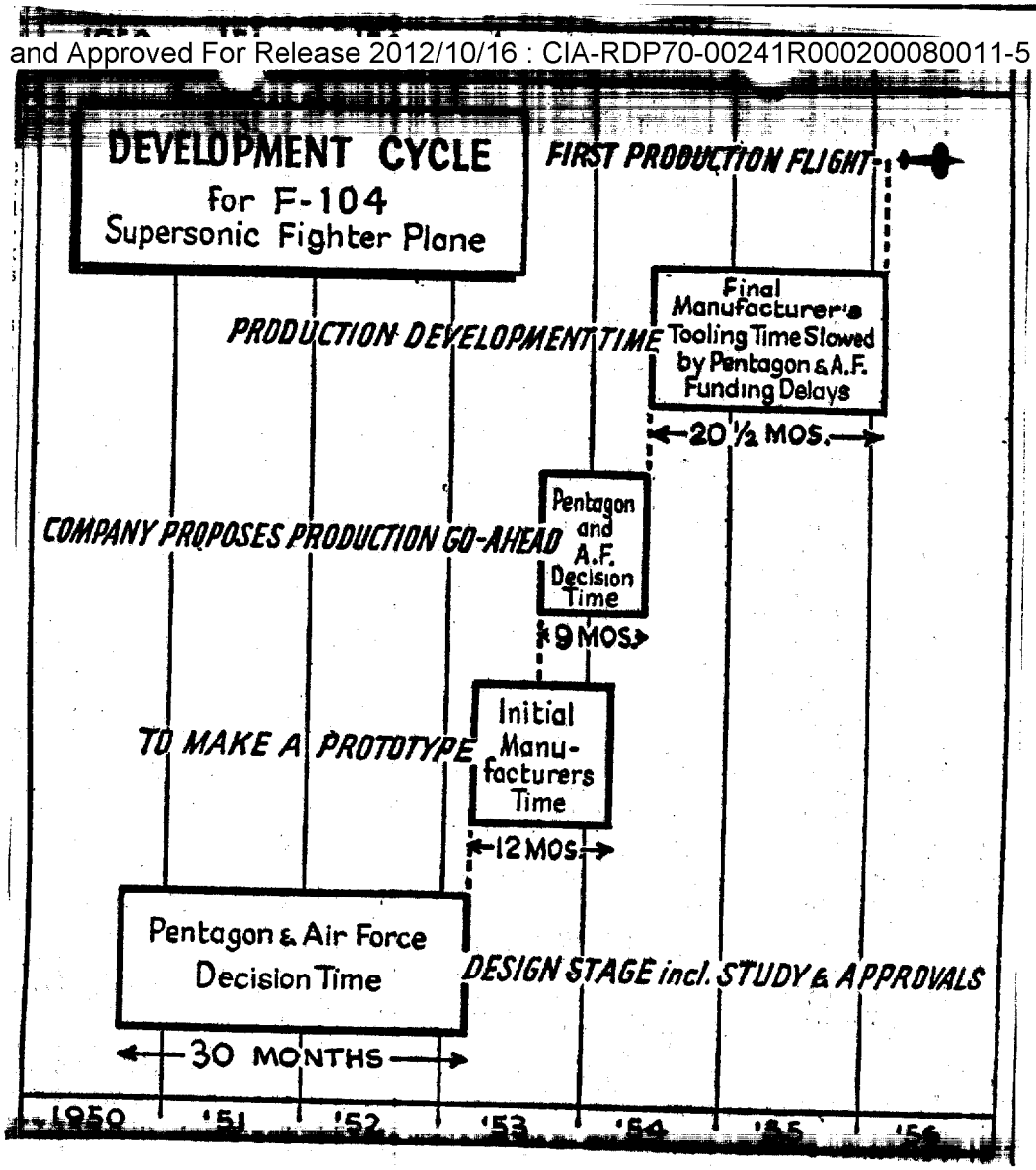
The question of the right jet engine perplexed Washington; whether or not to take a risk on a not-fully-tried power plant. And the armament. Guns? Rockets? If rockets, what size? And, as always, there were other problems.

During this interlude of indecision, Lockheed did what other aircraft makers have done on occasion to keep programs moving and hold talented staffs intact—it went ahead on its own, preparing for production. In June, 1954, the company was authorized to begin limited production.

FOURTH TIME SPAN (twenty and one-half months):—Even though production had been approved, the F-104s were slow to come off the line. For one thing, Washington was having money trouble and could not authorize Lockheed to do much more than buy certain equipment and raw materials which must be ordered far in advance of delivery. The first production model F-104 did not fly until June, 1956.

THE PRESENT:—Today, the rate of Starfighter production is a military secret, but it is certain that not more than a relative few of the wonder fighters have been turned out. Certainly production will be stepped up soon.

The Pentagon and Air Force cannot be blamed entirely for money problems such as those which added to the F-104 lead time. But they are blamed vigorously by aircraft makers generally for lengthening lead time through indecision and red tape, and for "getting too many people into the act" in turning out warplanes.



[illegible] aircraft industry executives interviewed by the Herald Tribune complained, for example, about what one called the "dictatorial" attitude of the Air Force's Air Materiel Command at Wright-Patterson Air Force Base in Dayton, Ohio. As of April of this year, the Air Material Command organization chart listed seventy-two officers and divisions, the great majority of which deal with the aircraft industry and are involved in nearly every aircraft project sponsored by the Air Force.

Frequently is necessary for an airplane maker to obtain approval from a host of Wright-Patterson agencies before he can proceed, for example, with an idea or proposal which he is convinced will improve the aircraft he is building for the Air Force.

Engineer's Story About Red Tape

As for red tape—a top aircraft engineer told this story:

One of his draftsmen was assigned one day to make a routine drawing of a simple T-pipe fitting in a new fighter. It took him about two hours to complete the drawing on a sheet of paper 8 by 11 inches. The Air Force requires that all such drawings be titled according to its specifications, so the draftsman went to the specifications to get the title requirements.

The first set of specifications provided part of the requirements and referred him to another set. The second set of specifications referred the draftsman to another volume.

After two days of poring over specifications, the draftsman obtained all the requirements for the title to his drawing and returned to his drawing board. But putting the title on his 8-by-11-inch piece of paper became a problem. The title turned out to be so voluminous that it covered nearly two-thirds of the sheet of paper and shoved the drawing itself right off the sheet. He wound up by getting a larger sheet and doing it all over again.

"This," the engineer explained, "is a small example of what we call 'horrible trivialities'.

"The man-hours wasted in coping with every little detail of Air Force 'mill specs' are beyond all count. And this wasted time means longer lead time in getting out airplanes.

"Look at it," he exclaimed, pointing to a color picture of the F-104, soaring sleek and pristine in its home in the blue yonder.

"Born out of long and heavy labor in a bureaucratic quagmire."